ABSTRACT

BACKGROUND:

Direct laryngoscopy and endotracheal intubation always trigger powerful cardiovascular responses. Various attempts have been made to attenuate these responses.

AIM:

To evaluate the safety and efficacy of esmolol and lidocaine in attenuating the cardiovascular stress responses to laryngoscopy and intubation and to assess whether combination of drugs is more effective than either drug alone.

METHODS AND MATERIALS:

- It is a prospective randomized double blinded study . 90 patients of ASA I&II between age group of 18 to 45 years who were posted for elective surgeries under general anaesthesia were randomized based on computer based randomization into 3 groups ,esmolol group(group E), lidocaine group(group L) and combination group (group LE). with 30 in each group. Induction of anesthesia was standardized for all patients. GroupE received esmolol 2mg/ kg 90 seconds prior, Group L received lidocaine 1.5mg/kg 3 minute prior, Group LE received lidocaine 1 mg/kg and esmolol 1mg/kg 3 minutes & 90seconds prior to laryngoscopy respectively. Intubation was done in all patients by third year MD postgraduate. Baseline systolic blood

pressure and heart rate (HR) were recorded and at the time before laryngoscopy, immediately after intubation 1, 3,5,15 and 30 minutes following intubation.

RESULTS:

After administration of the test drugs, all three groups had significant decrease of heart rate ,systolic, diastolic, and thereby mean arterial blood pressure values. Group L showed near baseline values only until the 3rd minute but Group LE showed sustained near baseline values till 15 minutes . Patients in Group E had significant decrease in systolic, diastolic and mean arterial blood pressure(less than 20% of baseline) before intubation. Near base line blood pressure values was observed in Group LE following intubation till the 30th minute.While Group E showed sustained decrease in all the three blood pressure values after intubation till 5th minute. At the 15th and 30th minute the blood pressures of Group E was also near base line. Group L showed significant increase in all the three blood pressures till the 15th minute.After 30 minutes,heart rate and the systolic blood pressure, of all the three groups was statistically insignificant. Whereas diastolic blood pressure and mean arterial blood pressure was found to be significant. In Group LE rate pressure product, did not overshoot the baseline value during laryngoscopy and intubation. Whereas in Group E, rate pressure product was significantly below the

baseline because of reduction in heart rate and blood pressure. Whereas in group L, rate pressure product was significantly high above baseline .

CONCLUSION:

Only the combination of esmolol and lidocaine is effective in maintaining the haemodynamic parameters near baseline. Whereas esmolol alone at a higher dose cause significant reduction of heart rate and blood pressure well below baseline upto 15 mins. Lidocaine is effective in maintaining heart rate near baseline but there was a significant increase in blood pressure.

KEY WORDS:

Lidocaine , Esmolol, Stress attenuation, laryngoscopy, endotracheal intubation.